**Taking Advantage of Strong Boron-Oxygen and Boron-Fluorine Associations for Chemoselective Reactions**

The Williams lab has been investigating the utility of highly Lewis acidic boron centers for the activation and cleavage of alkyl ethers and in halogen exchange reactions of trifluoromethylarenes. Such strategies have enabled the targeting of strong C–O bonds and C–F bonds for cleavage in the presence of weaker bonds. These practical methods have important applications in medicinal and agricultural chemistry, as well as in sustainable chemistry development, such as the mild separation of cellulose from lignocellulose – a biopolymer that can provide a renewable source of aromatic chemicals such as vanillin. This talk will examine the development of such boron-mediated methodologies, applications to different modern challenges, and the differential reactivity and behavior of boron trihalide species.